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Case Report

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# First Report of Pigeon Maggot, *Musca domestica* in a Pigeon Squab in Egypt

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## Abstract

In this study, we retrieved 42 live third-stage larvae from the crop of an infected squab. This condition is known as myiasis, which occurs due to the infestation of fly larvae belonging to the order Diptera in the tissues. The larvae may affect the storage and digestive functions of the crop in squabs. Here, we report the first case of crop myiasis in a pigeon squab, caused by *Musca domestica* (Diptera: Muscidae), identified using morphological keys.

KEYWORDS
Pigeon, Myiasis, Crop, *Musca domestica*, diptera,Arthropoda

## INTRODUCTION

Rare cases of natural avian myiasis have been reported, including otomyiasis in geese caused by *Sarcophaga* species (Aldemir *et al*., 2014), Cutaneous myiasis in owls due to *Lucilia* species (Pirali-Kheirabadi *et al*., 2010) and myiasis in chickens due to many dipteran species (Bermudez *et al*., 2007). In turkey flesh, a large number of *Lucilia sericata* maggots was observed (Al-Khalidi and Shareef, 1985). In addition, reddish larvae identified as second larvae of *Protocalliphora* blow flies (Diptera: Calliphoridae) were found on the skin of pigeons (Halajian *et al*., 2012). Pigeon crop milk, secreted by birds to feed nestlings, plays a crucial role in regulating the innate immune response of pigeons (Goudswaard *et al*., 1979). Therefore, the presence of live larvae in the crop of squabs may disrupt the crop's function and affect bird health. This study presented the first case of crop myiasis in a pigeon squab caused by *Musca domestica*.

## CASE HISTORY

A single squab, approximately one month old, was brought to the Department of Parasitology at Zagazig University's Faculty of Veterinary Medicine in Zagazig, Egypt. The owner reported poor husbandry practices, where the pigeon flock was only given food and water once a week. During a postmortem examination of the bird for parasites, 42 live whitish larvae were retrieved from the crop (Plate 1a). The larvae were fixed in 70% ethyl alcohol and examined under a microscope. Some specimens were cleared in lactophenol and mounted on polyvol. The larvae were identified as third-stage *Musca domestica* (Diptera: Muscidae) larvae based on their color, size, morphology of anterior and posterior spiracles, and the cephalopharyngeal skeleton of the larvae (Plate 1b, c, and d) (Spradbery, 1991; Wall and Shearer, 1997; Fessl *et al*., 2006), the larvae were identified as third-stage *Musca domestica* (Diptera: Muscidae) larvae. No pathological changes were observed during the necropsy.

## RESULTS AND DISCUSSION

Myiasis is a significant economic problem that affects the livestock industry, public health, and bird performance (Manzoli *et al*., 2013). Natural Myiasis is a rare condition in birds (Pirali-Kheirabadi *et al*., 2010) and few studies about a natural myiasis in pigeons have been published. Here, to the best of our knowledge, we report the first occurrence of natural crop myiasis in a pigeon squab, caused by 42 whitish coloured larvae of *Musca domestica*. Likewise, in a previous study, different larval instars of *Philornis downsi* (Diptera: Muscidae) were found in finches in different sites (Fessl *et al*., 2006). In our study, we hypothesized that the presence of the larvae in the crop of the squab's mother infected the squab through feeding. A previous study showed that crop milk in adult pigeons plays a role in transmitting other parasites as *Trichomonas gallinae* (El-Khatam *et al*., 2016). However, we assume that the squab acquired parasites from environment due to poor flock hygiene. Accidental myiasis (pseudomyiasis) usually involves muscoid flies, such as *M. domestica* and *Fannia* species (Kettle, 1984). On the other hand, cutaneous myiasis due to *Lucilia sericata* (Diptera: Calliphoridae) has been observed in


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geese (Farkas *et al*., 2001; Rauchbach and Hadani, 1972). Moreover, *Ferruginous pygmy*-owl and eastern screech-owl were identified as new hosts for *Philornis mimicola* (Diptera: Muscidae) (Proudfoot *et al*., 2006).

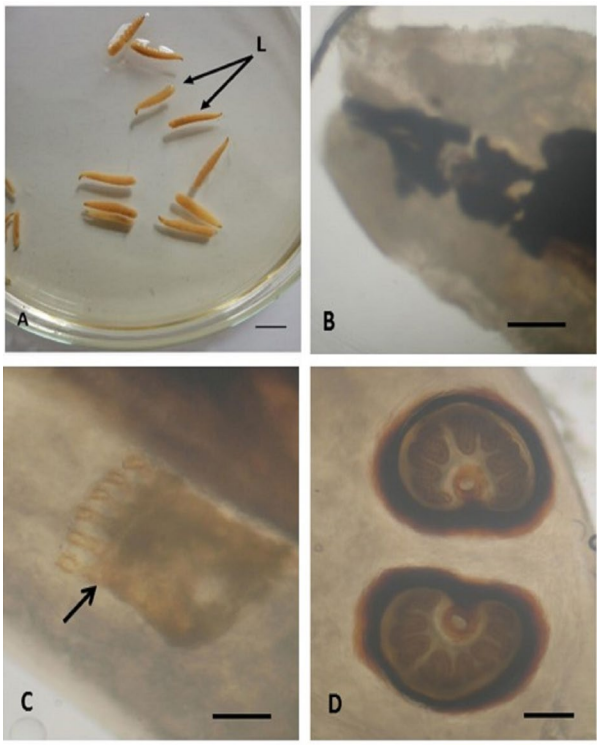


Fig. 1. a) Photograph showing freshly recovered third stage larvae of *Musca domestica* from crop of pigeon squab (L: Larvae; Bar= 12 mm). b) Micrograph showing anterior end of third stage larva of *Musca domestica* (Bar= 100 µm). c) Micrograph showing anterior spiracles of third stage larva of *Musca domestica* (Lactophenol, Bar= 75 µm). d) Micrograph showing posterior spiracles of third stage larva of *Musca domestica* (Bar= 70 µm).

Further studies using experimental approaches are necessary to support our findings and to better understand the ecology of myiasis. Elucidating the life cycle of dipteran parasites in other bird species is of particular interest.

## CONCLUSION

We present a case report of natural crop myiasis in a young pigeon, caused by third-stage *Musca domestica* larvae (Diptera: Muscidae). Morphological keys were used to confirm the larvae's identification. This case is considered rare, as natural myiasis is not commonly observed in pigeons.

## CONFLICT OF INTEREST

The authors declare that no conflict of interest exists.

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